

PRESCOTT BRIDGE
U.S. Highway 10 over the St. Croix River
Prescott/Pt. Douglas
Pierce County/Washington County
Wisconsin/Minnesota

HAER No. WI-61

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
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HISTORIC AMERICAN ENGINEERING RECORD

PRESCOTT BRIDGE

Location: United States Highway 10 over the St. Croix River at Prescott, Wisconsin; the structure is located in both Pierce County, Wisconsin and Washington County, Minnesota

UTM: 15:515470:4954860

Quad: Hastings, Minnesota (7.5 minute series, 1974)

Date of Construction: 1922

Present Owner: Wisconsin Department of Transportation; Minnesota Department of Transportation

Present Use: Structure is currently used as a highway bridge but is scheduled for demolition in 1990.

Significance: The Prescott Bridge is a rare regional example of a Waddell-and-Harrington, vertical-lift highway bridge. Built by a group of Prescott residents who operated it as a toll crossing from 1923 to 1946, the bridge proved to be a successful commercial venture, although it did not revitalize the City of Prescott as many had expected. The bridge played a major role in developing the region's commerce and transportation, helping to create a major interstate route (eventually designated United States Highway 10) which linked eastern Wisconsin and St. Paul. Recognizing its importance, the Minnesota and Wisconsin Highway Commissions in 1946 purchased the bridge and removed the toll to facilitate travel and commerce. By 1969, the Prescott Bridge could not accommodate current traffic needs and it was scheduled for replacement.

Historians: Demian J. Hess and Jeffrey A. Hess, September 1989

Description

The Prescott Bridge carries United States Highway 10 over the St. Croix River at Prescott, Wisconsin. It is a 538-foot, three-span structure equipped with a central vertical lift, and supported by reinforced concrete abutments and piers (see HAER Photo Nos. WI-61-5, WI-61-6, WI-61-15; also see 1922 construction plans in Supplementary Data section). [1] The spans are identical in design, each being a riveted, through Camelback truss with angle-section portals, sway bracing, and top and bottom laterals. The top chords of all the spans are composed of heavy, paired channel sections with a top plate and bottom X-lacing. The bottom chords consist of heavy, paired angle sections tied with bottom batten plates. The vertical members of the webs are composed of paired, back-to-back angle sections tied with V-lacing to approximate I-beams. The diagonals are paired angle sections tied with batten plates. From outer-web to outer-web, the trusses measure 21'-8" in width. From the surface of the roadway to the bottom of the overhead sway bracing, the bridge has a minimum clearance of approximately 14 feet.

The westernmost fixed span has nine panels and measures 172'-10" in length. The easternmost fixed span has 10 panels and measures 191'-10". It appears that the portal, sway, and top-lateral bracing at the eastern end of the east span have recently been rebuilt, as the members are bolted, rather than riveted, and show a greater degree of discoloration and rust than the rest of the bridge (see HAER Photo No. WI-61-12). The second verticals from the eastern end have also been reinforced with welded channel sections (see HAER Photo No. WI-61-16). Other noteworthy features include a builder's plate, located on the southeast endpost, and a wooden, flat roofed "toll taker's house," located at the west end of the span and

attached to the outside of the north web by means of cantilevered steel brackets (see HAER Photo Nos. WI-61-13, WI-61-9). Although tolls have not been collected since 1946, the house is still used as a shelter by the lift operator.[2]

The vertical-lift span is composed of nine panels and is 174 feet long. Both portals have been damaged and are reinforced with heavy, welded, steel box sections. A plate on the northeast endpost notes that the lift span was designed by the firm of Harrington, Howard and Ash of Kansas City, Missouri.[3] The design was originally developed by John Alexander Low Waddell in 1892, and subsequently refined in partnership with John Lyle Harrington. The general type is customarily known as a "Waddell and Harrington vertical lift." In conformance with this design, the lift span of the Prescott Bridge is flanked by steel towers supported by the bridge piers (see HAER Photo No. WI-61-7). The towers stand approximately 82 feet above the piers, or approximately 76-1/2' above the surface of the roadway. Steel cables are anchored to each end of the lift span and pass over sheaves mounted at the top of each adjoining tower. Once over the sheaves, the cables are tied to concrete weights, which counter balance the load of the lift span. The counter weights move up or down within the framework of the tower as the lift span is raised or lowered (see HAER Photo Nos. WI-61-8, WI-61-11).

The motive power to operate the lift was originally supplied by a "Gray Marine" gasoline engine.[4] In 1931, a "Velie" gasoline engine was added as a back-up.[5] The lift operation was electrified in 1954, when the Wisconsin Highway Commission installed a 15-horsepower electric motor.[6] The motors and reduction gears are sheltered in a wooden, gable-roofed "operator's house" mounted above the top lateral bracing in

the center of the lift span (see HAER Photo Nos. WI-61-7, WI-61-20). The motors power two winding drums, mounted to the north and south of the operator's house and connected to a single transverse drive shaft (see HAER Photo No. WI-61-21). To effect the lift, a set of "operating cables" run from the drums to "deflector sheaves" mounted above the top-lateral bracing in each corner of the span. One "uphaul" cable passes through each deflector sheave, anchoring to the top of the adjacent tower. A "downhaul" cable also passes through each deflector sheave, anchoring to the lower end of the tower. To raise the span, the motor winds the uphaul cables onto the drums, simultaneously playing-out the downhaul cables. The operation is reversed to lower the span (see sheet 9 of the 1922 construction plans in Supplementary Data section).[7] With the span in raised position, vertical navigational clearance is 69 feet above normal pool elevation. In the "down" position, the bridge provides a minimum vertical clearance of approximately 16 feet.[8]

The bridge carries a 20-foot-wide reinforced concrete deck supported by steel floor beams and stringers. The roadway is enclosed by a lattice railing fastened to the inside web of the trusses. A welded steel fender is bolted to the inside of the railing just above the surface of the roadway (see HAER Photo No. WI-61-14). A 37-inch-wide timber-deck sidewalk runs along the outer south web of the bridge, supported by cantilevered steel brackets. The outer edge of the sidewalk is enclosed by a low pipe railing.

Engineering Significance

Largely unaltered and still in use, the Prescott Bridge is a rare, surviving, regional example of a Waddell-and-Harrington vertical lift

highway bridge. Its significance as an engineering structure is best evaluated within the general context of Minnesota and Wisconsin movable highway bridges.[9]

Movable bridges, also known as drawbridges, are constructed over navigable waterways when it is impractical or uneconomical to build fixed bridges of sufficient height to permit the passage of vessels. Human ingenuity has devised numerous systems for lifting, dropping, folding, rotating, and retracting a span to provide temporary clearance. By the early twentieth century, however, American engineers had focused their attention on three basic drawbridge categories: swing, bascule, and vertical lift.

Briefly defined, a swing span revolves in a horizontal plane around a vertical axis, a bascule span rotates in a vertical plane around a horizontal axis, and a vertical-lift span rises and descends in a vertical plane. As Table 1 indicates, a total of 108 movable highway bridges existed in Minnesota and Wisconsin in 1935, with Wisconsin claiming more than six times the share of its neighbor. Wisconsin's greater dependence on movable bridges was a function of both its canal system along the industrialized Fox waterway and its numerous navigable rivers in major port cities (Green Bay, Manitowoc, Milwaukee, Racine, Sheboygan). In contrast, commercial navigation in Minnesota was largely restricted to the Mississippi River, where elevated bluffs obviated the need for movable spans.

In Minnesota and Wisconsin, as well as elsewhere in the nation, virtually all nineteenth-century movable bridges were of the swing-span variety, and the type continued to be constructed during the early twentieth century. As late as 1935, a total of 51 highway swing spans were.

TABLE 1
Minnesota and Wisconsin Movable Highway Bridges, 1935
(N = 108)

Construction Date	Swing		Bascule		Vertical Lift	
	MN	WI	MN	WI	MN	WI
Unknown	2	6	0	0	0	0
Pre-1880	0	1	0	0	0	0
1880-1889	1	3	0	0	0	0
1890-1899	3	12	0	1	0	0
1900-1909	0	12	0	8	0	0
1910-1919	1	7	0	9	1	0
1920-1929	0	3	3*	19*	2*	2*
1930-1935	0	0	0	12	2*	1*
State Total:	7	44	3*	49*	5**	3**
Combined Total:	51		51		6	

* Includes 1 MN-WI Interstate Bridge

** Includes 2 MN-WI Interstate Bridges

Source: Office of the Chief of Engineers, United States Army, List of Bridges Over the Navigable Waters of the United States . . .
Revised to January 1, 1935 (Washington, D.C.: Government Printing Office, 1936).

Note: Table does not include movable highway spans included in "double-deck" railroad bridges.

in operation in the two states. Not one of these structures survives.[10]
The demise of the highway swing span was nation-wide, reflecting its growing incompatibility with an urban setting. There were two basic problems. First, the central pivot pier increasingly became an obstruction to navigation for the ever-larger vessels of the late nineteenth and early twentieth centuries. Second, the swing span itself squandered valuable space. By requiring a clear turning radius, it prohibited the development of docking facilities adjacent to the bridge site.[11] These shortcomings were especially onerous along highly industrialized urban waterways, where shipping channels tended to be narrow, highway crossings numerous, and real estate prices high. For less crowded sites, the swing span remained a viable form of technology well into the twentieth century. Most surviving swing spans, for example, are railroad bridges in rural regions or in relatively uncongested urban areas. But in the downtown waterfront of late nineteenth-century American cities, the swing span was marked for extinction. Its major adversary was the federal government.

No matter how loudly shipping and real-estate interests might denounce the swing span, there was no effective means of regulating movable-bridge design until the early 1890s, when Congress authorized the War Department to approve plans for all new bridges over navigable waterways and to seek the alteration of any existing bridge that interfered with "reasonably free, easy and unobstructed" navigation.[12] In 1892, the War Department sent a clear message of future policy by way of Chicago, demanding the removal of a two-year-old swing span from one crossing of the Chicago River and denying permission to build a new swing span at another. The search for an alternate drawbridge technology began in earnest. Not surprisingly, Chicago was in the vanguard. In 1895, municipal authorities spanned the Chicago River at South Halsted Street with the world's first, modern,

vertical-lift bridge.[13]

During the middle decades of the nineteenth century, an occasional vertical-lift span was constructed in Europe or the United States. Although their engineering was often ingenious, the bridges themselves were quite modest, designed mainly for "canals and small navigable streams in cases where it was only necessary to lift the spans a few feet to clear traffic in the channels." [14] The modern, long-span, high-rise vertical-lift bridge dates from the last decade of the nineteenth century. In 1892, the City of Duluth, Minnesota hosted a design competition for constructing a drawbridge over its harbor entrance on Lake Superior, which comprised a clear channel 250-feet in width. Under the rules of the competition, the successful design "would leave the entire width of the canal free to passing vessels," which effectively eliminated traditional, center-pier swing spans.[15]

Most responses to the Duluth competition employed some form of "sliding draw" mechanism, whereby the span moved back and forth on rollers. A striking exception was a design submitted, and later patented, by John Alexander Low Waddell (1854-1938), a consulting engineer based in Kansas City, Missouri, who, during the next forty years, would become "one of the best-known bridge engineers in the United States." [16] Waddell proposed to build "a vertical lift bridge consisting of a simple truss span 260 ft. long so constructed and supported as to allow of being raised vertically to a height of 140 ft. above the surface of the canal."

At each end of the moveable span is a tower 170 ft. high, carrying at its top built steel pulleys about 15 ft. in diameter. Over these pulleys steel wire ropes, or chain cables, pass. One end of each cable is attached to the end piers of the trusses, and [one] end to counter-weights which exactly balance the dead weight of the span. The only work left for the operating machinery is, therefore, to overcome the weight due to dirt, water, snow, etc. The power for operating the bridge is supplied by two electric

motors placed at mid-span; the upward and downward motion being regulated by racks and pinions communicating with the power by means of steel shafting and spur and mitre wheels. [17]

Although the Duluth authorities selected Waddell's design, the War Department vetoed the construction of any draw bridge at that site at that time. Waddell, however, had devised a seemingly practical solution to the draw bridge problem. His vertical-lift span did not obstruct navigation and dockage like a swing-span, nor did it clutter up the shore approaches like a sliding-draw span. A few months after the cancellation of the Duluth project, the City of Chicago commissioned Waddell to modify his original design for a 130-foot span capable of 150-foot clearance over the Chicago River at South Halsted Street. This structure was completed in 1894. [18]

The South Halsted Street Vertical-Lift Bridge remained the only example of its kind for over a decade. In later years, Waddell attributed the long delay in constructing another vertical lift to the knavery of those in charge of subsequent bridge projects, who, as he put it, "demanded boodle---a condition with which [I] never did and never will comply." [19] There were other reasons as well. During the period 1895 to 1905, engineers in Chicago and Milwaukee perfected several bascule designs, which were widely believed to be more economical for narrow waterways than Waddell's vertical lift. The new type received early and strong endorsement from the City of Milwaukee, which built 10 bascule spans between 1902 and 1910. It was subsequently adopted as the preferred movable-bridge type by the Wisconsin State Highway Commission, organized in 1911 to improve the state's road and bridges. But the greatest obstacle to the initial acceptance of the vertical-lift span was the fact that the South Halsted Street Bridge contained certain mechanical flaws, which gave.

it the reputation for "heavy first cost and maintenance, and expensive operation." [20]

In 1907, Waddell formed a partnership with John Lyle Harrington (1868-1942), a skilled civil and mechanical engineer who was largely responsible for reworking Waddell's invention into "a rational, well-integrated design." [21] In its essential form and dynamics, the "Waddell and Harrington version" remained true to the original 1892 design: "A simple span equipped with machinery for operation, suspended at each end by wire ropes which pass over sheaves on towers and connect to counterweights about equal to the span weight." [22] Before the partnership dissolved in 1914, Waddell and Harrington designed about 30 vertical-lift spans for highway and railroad crossings. [23] After they parted company, both men continued to work in the field, and Harrington's new office--Harrington, Howard, and Ash--became particularly well known, as was its successor, Ash, Howard, Needles and Tammen.

Six vertical-lift highway bridges were constructed in Minnesota and Wisconsin before World War II. At least five, including the Prescott Bridge, were designed by Waddell and Harrington or successor firms. All were of the standard Waddell and Harrington type. As Table 2 indicates, the 1923 Prescott Bridge was the third of this cohort to be completed, and is the earliest surviving example.

In addition to being a rare regional example of an important bridge type, the Prescott Bridge played a significant role in the development of the area's commerce and transportation. The bridge was originally built as a local effort to promote the development of the City of Prescott, Wisconsin, and it played a major part in the growth of commerce and

TABLE 2
Minnesota and Wisconsin Vertical-Lift Highway Bridges Built Before World War II

Construction Date	Demolition Date	Site	Engineer	Hor. Clear.	Vert. Clear.
1913	1959	Red R., Olso, MN	Waddell & Harrington	150'	63'
1918	1939	Mississippi R., Ball Club, MN	Unknown	56'	64'
1923	---	St. Croix R., Prescott, WI/ Pt. Douglas, MN	Harrington, Howard & Ash	160'	74'
1926	1983	US Govt. Canal, Kaukauna, WI	Harrington, Howard & Ash	100'	65'
1930*	---	Ship Canal, Lake Superior, Duluth, MN	Harrington, Howard & Ash	300'	135'
1931	---	St. Croix R. Stillwater, MN/ Houlton, WI	Ash, Howard, Needles & Tamm	136'	65'

* Date of conversion to vertical lift design; the original structure was constructed in 1905 as an aerial lift, or "car ferry," bridge.

Source: Minnesota Department of Transportation; Wisconsin Department of Transportation

automobile travel between Wisconsin and Minnesota. As the history of its construction and operation reveals, the Prescott Bridge is historically significant on a local and regional level.

Historical Significance

Founding of the Prescott Bridge Company and construction of the bridge

In February 1920, a group of Prescott residents under the leadership of ^{Herman} ~~Henry~~ G. Fiedler formed the Prescott Bridge Company to construct a toll bridge over the St. Croix River at Prescott.[24] At that time, Prescott was the site of a ferry crossing in use since 1852.[25] The company proposed the new bridge to capitalize on the recently established Wisconsin State Road 34, linking eastern Wisconsin to Prescott.[26] The bridge directors were also probably heartened by the Minnesota Legislature's passage of the "Babcock Plan" in 1919.[27] Under this plan, the legislature proposed to construct and improve a network of State Trunk Highways along the state's principal routes. The company almost certainly anticipated that a trunk highway would eventually carry traffic to the bridge and the Prescott community. On the whole, the directors expected that the bridge would become part of a major interstate route, linking eastern Wisconsin with St. Paul. As the Prescott Tribune observed in February 1920, "practically all traffic from the east will pass through our city, many miles will be saved for many tourists. The distance between Red Wing, Maiden Rock, Diamond Bluff and St. Paul would be cut at least about ten miles." [28]

Sales of bridge stock began in March, with the directors spearheading drives in Prescott, St. Paul, and many intervening communities. Realizing that a good road from St. Paul to Prescott was vital to the bridge's

success, the directors also "boosted" for road improvements while promoting stock. Evidencing local support, the Prescott Tribune declared the bridge to be "Prescott's opportunity," and the City Council and Commercial Club participated in its planning. Commercial organizations and "Good Roads" societies outside of Prescott also pledged their support. In Minnesota, the Washington County Commissioners went so as far as to agree to construct a highway to the bridge's Minnesota approach.[29] Bolstered by this support, the directors sold enough stock by October to file Wisconsin incorporation papers, capitalizing the company at \$100,000.[30]

Because the St. Croix was a navigable waterway, the proposed structure had to provide sufficient vertical clearance for vessels to pass under it. The directors scrapped early plans for a high bridge in February 1920 as being too expensive. They also considered designs for a cantilever bridge and a bascule.[31] In November, the company consulted with the St. Paul architectural and engineering firm of Toltz, King, and Day (TKD).[32] TKD made its report on 9 December 1920, at the first organizational meeting of the Prescott Bridge Company's stockholders. I.F. Shearer, the secretary, recorded in the company minutes: "Mr. King of the engineering firm of Toltz, King, and Day...reported that after looking the proposed site over and taking the needs of navigation into consideration...the Waddell, Harrington type of straight lift bridge seemed the [most] feasible." TKD estimated that the bridge could be completed for \$125,000.[33]

In February 1921 the Prescott Bridge Company contracted with TKD to prepare plans and oversee construction of the proposed bridge.[34] The directors spent the remainder of the year acquiring land and rights-of-way on both sides of the river for the bridge approaches.[35] They also secured permission to build an interstate toll bridge from the United

States Congress and the legislatures of Minnesota and Wisconsin.[36] In December 1921, TKD submitted plans for a three-span bridge with a central Waddell and Harrington vertical lift. To design the lift span, TKD secured the services of Harrington, Howard and Ash of Kansas City, Missouri.[37]

With plans in hand, and impatient to start actual construction, the shareholders on 20 December 1921 passed a resolution to "start the bridge at once." [38] Ten days later, the company directors requested TKD "to advertise for bids on the proposed bridge in accordance with plans prepared by them, said bids to be opened February 2, 1922...at the engineers' office in St. Paul." [39] On 11 February 1922, the directors officially let the bridge contract to Peppard and Fulton, general contractors from Superior, Wisconsin, for \$90,000.[40] Announcing that they would begin work on the abutments within two weeks to avoid springtime highwater, Peppard and Fulton estimated a mid-October completion date for the entire project.[41]

The choice of Peppard and Fulton proved to be a good one, and construction proceeded smoothly. In June 1922, the directors reported to TKD that "work on the bridge seems to be going along alright and everything looks very favorable, contractors seem to [be] sincere in their effort to give us all that we pay for." [42] Peppard and Fulton began work on the bridge superstructure on 11 September 1922, when "the first piece of steel was hoisted into place at 4:15 pm...." [43] On 23 November 1922, the Prescott Tribune reported that "the bridge contractors have been putting in their best licks the past week and as a result the steel work is all up and work on the bridge proper nearly completed....In all probability crossings can be made sometime next week." [44]

The Prescott Bridge was put into service in 1923, and the Prescott Commercial Club organized an official opening ceremony on the 22nd of June.

The ceremony was replete with speeches, a bridge christening, ball games, dances, banquets, and the crowning of a queen. The Prescott Tribune stated that "the official opening of the new traffic toll bridge...was ideal in every particular and one of the largest crowds in the history of the town was on hand to take in the doings." [45] The bridge cleared its final legal hurdle in August, when the War Department officially certified the bridge as complying with clear-channel specifications. [46]

Operation under the Prescott Bridge Company

The Prescott Bridge Company operated the toll crossing until 1946, when the bridge was acquired by the Minnesota and Wisconsin Highway Commissions. To collect tolls and raise the lift span, the company employed four bridge tenders who split six-hour shifts. [47] Theoretically, the board of directors administered bridge operations, but it generally left all matters to the care of the president of the company, ^{Herman} ~~Henry~~ G. Fiedler, who also served as one of the bridge tenders. A minutebook entry for a directors' meeting on 5 March 1925 is typical: "The matter of having a protective frame built around the powergears in the control house was discussed at some length, no vote was taken, by general consent the matter was left to Mr. Fiedler to be worked out to the best of his judgement and ability." [48]

In general, the bridge required only routine maintenance, such as greasing the cables and painting the superstructure. Minor work, such as riprapping, was periodically done to the abutments and piers. In 1928, the directors replaced the deflectors sheaves on the lift span with ones of a larger, though unspecified, size. To serve as a back-up, they also installed a "Velie" gasoline engine in 1931. In 1937, at the request of

the War Department, the company added an air compressor and signal horn. In 1941, the company constructed a steel stairway from the deck to the operator's house on the lift span. Due to the extra load, the counterweights were rebalanced at that time.[49]

Reflecting the nation's growing use of motor vehicles, bridge traffic steadily increased from 1923 to 1946, declining only during the mid-1930s, due to the Depression, and during World War II, when gas and rubber rationing curtailed travel. In 1926, when exact statistics are first available, 67,167 cars and 6,181 trucks crossed the St. Croix at Prescott. By 1940, these figures had risen to 143,080 cars and 28,105 trucks.[50]

During the same time period, traffic under the bridge, on the St. Croix, appears to have varied from year to year. In 1931, the first year records are available, the lift span was raised 98 times. In 1946, the year the bridge was sold to the state highway commissions, the lift was operated 59 times. Between these years, the highest number of recorded lifts occurred in 1938, when the span was raised 104 times. The lowest record of lifts occurred in 1933, with only 48.[51]

High traffic volume, and the lack of major expenses, translated into respectable financial returns for the bridge company. The Minnesota Highway Commission estimated that from 1936 to 1944 the Prescott Bridge Company's average annual net earnings were \$12,350.[52] Based on these profits, the company issued dividends in every year of operation. These returns ranged from a low of 5% in 1923, the first year of operation, to a high of 19% in 1931.[53]

Although the bridge was a commercial success, it failed to be "Prescott's opportunity," as some had envisioned. Most of the bridge traffic appears to have passed through Prescott without providing any real.

benefit to the town. Prescott's population, which had been in decline since the 1860s, dropped to 758 in 1930.[54]

Acquisition by the Minnesota and Wisconsin Highway Commissions

Although the toll bridge did not make Prescott a commercial center, it did serve the commercial interests of other communities. By the 1930s, the bridge had become a vital transportation link, carrying traffic from eastern Wisconsin, via State Road 34 (also known as U.S. Highway 10), to St. Paul. The bridge was so important to St. Paul that Ramsey County, where the city was located, maintained the road which ran through Washington County to the bridge.[55] In Wisconsin, the State Highway Commission recognized the bridge's importance by planning extensive improvements along State Road 34 to accommodate the growing volume of traffic.[56]

Unfortunately, while the Prescott Bridge facilitated commerce and travel, it also proved to be a budgetary hindrance. The federal government took a dim view of toll bridges, arguing that toll taking caused traffic bottlenecks and placed an unfair burden on motorists already paying highway taxes. In 1932, the Bureau of Public Roads refused to grant Wisconsin federal aid to improve State Road 34 up to Prescott.[57] Anxious to secure the necessary funds, the Wisconsin Highway Commissioner proposed to his Minnesota counterpart that the two states purchase the Prescott Bridge and remove the toll. He explained:

We think that the time has now come when the acquisition of this bridge by the two states...should be given most serious consideration....I shall not go into our previous correspondence on this proposition or attempt to repeat the arguments in favor of the development of our State Trunk Highway No. 34 except to state that there is a tremendous territory in Western Wisconsin which is tributary to the South St. Paul stockyards and which naturally desires to approach the stockyards over the Prescott route. We

think so much of our State Trunk Highway No. 34 that we are making plans for its very extensive improvement....Under these circumstances, it would be a calamity if a toll bridge were allowed to remain at Prescott.[58]

To Wisconsin's dismay, the Minnesota Highway Commission reported that it could not purchase the Prescott Bridge because the structure was not located on a Minnesota Trunk Highway.[59] When U.S. Highway 10 was finally added to the state trunk highway system in 1933, the Minnesota Commissioner then reported that he lacked the funds to purchase the bridge.[60] It was not until 1940 that Minnesota officials showed any real interest in acquiring the crossing. By removing the bridge toll at that time, they hoped to increase traffic over U.S. Highway 10, and thus reduce congestion on parallel routes. The Minnesota Highway Commissioner wrote to Wisconsin:

We have been advised that during recent years you have done a considerable amount of construction of U.S. Highway No. 10 easterly of Prescott. We have been watching this work with a great deal of interest as we believe that upon its completion it will furnish a very much needed traffic artery into Minnesota from the east and will also relieve the present traffic on No. 12 to a considerable extent.

In this connection we would like to inquire as to whether or not the Highway Commission of Wisconsin would be interested in aquisition of the present toll bridge at Prescott. We would like very much to see this made a free bridge as that...would serve to increase the traffic over this route.[61]

Perhaps to give Minnesota a taste of its own medicine, Wisconsin officials responded "cooly," claiming that the state now lacked the funds for the project.[62] However, on 1 December 1942, the Wisconsin Highway Commission held a public hearing at Prescott on the matter of purchasing the bridge and removing the toll.[63] Further action was delayed by the war and disagreements over price. Finally, at a special meeting on 30 March 1946, the Prescott Bridge Company shareholders voted to sell the bridge for \$190,000.[64] Wisconsin and Minnesota took joint ownership of the Prescott Bridge on 30 June 1946.[65]

Operation by Minnesota and Wisconsin

Although jointly owned, the states agreed that "the operation of said bridge shall be under the control and direction of the State Highway Commissioner of Wisconsin...." All operating and maintenance costs, however, were shared by the states.[66]

The first major cost appears to have been incurred in 1952, when the states replaced the bridge's reinforced concrete deck and cables. At the request of the Cities of Hastings and Prescott, the highway commissions at that time also installed a sidewalk along the south side of the bridge. Due to the work on the deck and the addition of the walk, the counterweights were rebalanced. The 1952 project was completed under contract by L. G. Arnold, Inc. of Eau Claire, Wisconsin. The work was scheduled to be finished by 15 November 1952, but unfortunately a sudden cold wave froze newly poured sections of the deck on the lift span. In November, the Wisconsin Highway Commission alerted L. G. Arnold, Inc. that "the concrete in the floor of the lift span...is defective." The contractor repaired the damage the next season, but in 1980, perhaps as a result of these problems, the floor of the lift span was again replaced.[67]

In 1954, the lift operation was electrified with the installation of a 15-horsepower electric motor. Although more expensive than a gasoline engine, the Wisconsin maintenance engineer stated: "It is believed that, with an electric installation, there will be less trouble and more dependability and that over a period of years the additional annual cost will be almost negligible." [68]

Although these repairs kept the bridge in good operating condition, by

the 1960s it was clear that the Prescott Bridge would have to be replaced.[69] One problem was the bridge's low navigational clearance of only 16 feet. In addition to making the bridge prone to flooding, the low clearance required numerous lifts which created traffic delays. Although the number of yearly lifts remained within acceptable limits throughout the 1940s and early 1950s (averaging no more than 100), recreational river traffic increased dramatically in the 1960s. In 1969, the Prescott Bridge was raised 440 times. Throughout the 1970s and 1980s, the bridge was raised well over 300 times each year for the growing number of pleasure craft.[70]

The Prescott Bridge also proved to be too low and narrow to accommodate the needs of vehicular traffic. Highway officials estimated that a four-lane bridge would be needed by 1995 to handle increased traffic. To make matters worse, large trucks struck the bridge's overhead sway bracing and side panels with increasing frequency. From 1985 to 1987, for example, the Wisconsin Highway Department recorded at least five serious "high load hits" which required repair crews to straighten bent truss members. Concerned that the repeated damage would weaken the superstructure, Minnesota and Wisconsin officials in 1987 lowered the weight limit of the bridge from 40 to 15 tons to exclude the large trucks.

In 1969, the Wisconsin Legislature secured \$35 million to replace 24 "priority bridges." The Prescott Bridge was included in the list, but funding was exhausted before it could be replaced. Under pressure from local residents and politicians, planning for a new bridge at Prescott resumed in 1974. Finally, in 1989, work began on a new highway crossing, just south of the old bridge. The Prescott Bridge is currently scheduled for demolition in 1990. As part of the environmental review process, the

State Historic Preservation Offices of Minnesota and Wisconsin directed that the bridge be recorded according to "Level II Standards" of the Historic American Buildings Survey/Historic American Engineering Record. This study is intended to fulfill that obligation.

NOTES

1. Although generally known as the "Prescott Bridge," the structure was also assigned the following state bridge numbers: Wisconsin Bridge No. M-118, Minnesota Bridge No. 6009. For details on its appearance, see: Toltz, King and Day, and Harrington, Howard and Ash, "Bridge over St. Croix River at Prescott, Wisconsin....", unpublished plans, 31 December 1921, in the offices of Toltz, King, Duvall, Anderson and Associates, St. Paul (plans hereafter referred to as "Construction Plans"); Milwaukee Bridge Company, unpublished shop drawings, c.1922, in Minnesota Department of Transportation (MNDOT), Central Files, Bridge No. 6009.
2. Current condition of bridge based on field inspection by Demian Hess, 28 August 1989. The builder's plate on the southeast endpost, east span, lists the officers of the Prescott Bridge Company, the engineers, contractors, and date. For complete text, see photograph number WI-61-13, included in this study. According to Construction Plans, the "toll taker's house" was supposed to be constructed outside of the south web of the east span. It is not known why the change was made.
3. Due to heavy traffic on the bridge, the builder's plate on the lift span, northeast endpost, could not be examined. However, the text for the plate is given in Construction Plans, and reads: "Lift bridge designed by Harrington, Howard and Ash. Patented in U.S.A. Aug 24 1909, Mar 22 1910, Mar 29 1910, Sep 19 1911, May 28 1912, May 23 1912, Jan 7 1912, July 8 1913. Other patents pending. Also patented in Canada."
4. Construction Plans, Sheet 9, gives the following information on the original lift span engine: "Model VM 4-cylinder valve-in-head marine motor, 20-25 H.P. with reverse gear and rear starter. Gray Motor Co., Detroit Michigan."
5. The directors decided to install a back-up engine on 2 August 1928. The minutebook entry for that date reads: "Motion was duly made, seconded and carried, that a gasoline engine, for an auxillary power plant be be [sic] installed on the bridge and that A.J. Miller be requested to secure an engine and install it"; see Corporate Minutes, 2 August 1928, Vol. 2, P. 41, in Prescott Bridge Company Records, University of Wisconsin at River Falls, Area Research Center (collection hereafter referred as PBCR). The "Secretary's Report" for 1929 records that some work was done to accomodate the new engine. The report notes: "Cost of changing Control house to accomodate Auxillary power plant, \$52.55"; see Secretary's Report for fiscal year ending 7 December 1929, in PBCR. However, the engine itself

was apparently not installed until 1931, when the Secretary's Report for the year ending 5 December 1931 states: "Installing extra engine for auxillary power plant, \$346.25." The back-up unit was referred to as a "Velie" engine in an appraisal of the bridge prepared by Toltz, King and Day on 26 December 1945; in MNDOT Central Files.

6. See M.W. Fisher to M.O. Giersten, 8 March 1954, in MNDOT Central Files.

7. For a diagram showing the cable operations, see Construction Plans, Sheet 9.

8. See MNDOT's Structural Inventory and Appraisal Sheet for Bridge No. 6009; also see Construction Plans.

9. The following text on Minnesota and Wisconsin movable highway bridges is excerpted from Jeffrey A. Hess, "National Register Nomination Form for the Stillwater Bridge," unpublished, 1988. Copy on file at the Minnesota State Historic Preservation Office, St. Paul. This nomination, itself, is largely drawn from a study entitled "Wisconsin Movable Bridges," written by Jeffrey A. Hess for the Wisconsin Department of Transportation (WisDOT). This study will be published for limited distribution by WisDOT in 1989, as the third volume in the agency's "Historic Highway Bridges in Wisconsin" series.

10. Table 1 does not include movable highway bridges built as part of double-deck railway bridges. A swing span of this description survives in Minnesota, providing a combined railroad and highway crossing of the Mississippi River between Inver Grove (Dakota County) and Newport (Washington County). Constructed in 1895, the structure is Minnesota's only private toll bridge; see MNDOT files for Bridge No. 3450.

11. "The Design of Movable Bridges," Engineering News, 36 (November 5, 1896), 297; J.A.L. Waddell, Economics of Bridgework (New York: John Wiley and Sons, 1921), Pp. 284-285; Egbert R. Hardesty and others, "Fifty-Year History of Movable Bridge Construction--Part I," Journal of the Construction Division, Proceedings of the American Society of Civil Engineers, 101 (September 1975), 511-513.

12. W.M. Black, "Bridges Over Navigable Waters of the United States," Engineering News (April 13, 1893), 341-342.

13. Donald N. Becker, "Development of the Chicago Type Bascule Bridge," American Society of Civil Engineers Proceedings (February 1943), 266, 268.

14. Otis Ellis Hovey, Movable Bridges, Vol. 1 (New York: John Wiley and Sons, 1926), Pp. 146-151; see also H.G. Tyrrell, "A Comparison of Old and New Designs for Vertical-Lift Bridges," Engineering News, 70 (July 31, 1913), 225-226.

15. "Competitive Designs for a Drawbridge Over the Duluth Ship Canal, Duluth, Minn.," Engineering News, (October 27, 1892), 390.

16. James K. Finch, "John Alexander Low Waddell," Dictionary of American Biography, Supplement 2, Vol. 22, Pp. 686.

17. "Competitive Designs," 391. Waddell's vertical-lift design was covered by Letters Patent No. 506,571, dated October 10, 1893.
18. "The Proposed Bridge Over the Harbor Entrance at Duluth," Engineering Record, 25 (May 14, 1892), 398-399; J.A.L. Waddell, "The Halsted Street Lift-Bridge," American Society of Civil Engineers Transactions, 33 (January 1895), Paper No. 742, 1-16; "The South Halsted Street Lift Bridge, Chicago," Engineering Record, 27 (March 4, 1893), 273-276.
19. Waddell, "The Vertical Lift Bridge," Journal of the Western Society of Engineers, 29 (May 1924), 211-212. In his 1916 text, Bridge Engineering (New York: John Wiley and Sons), Waddell was a bit more circumspect: "For many years after the completion of the Halsted Street structure the author endeavored unsuccessfully to build similar bridges at other places, the main reason for his failures being that he often ran into political and financial conditions of such a nature that his engineer's conscience prevented his dealing with the parties interested" (Vol. 1, P. 723).
20. The critique of Waddell's vertical-lift design is from Schneider's "Movable Bridges," Transactions, 268-269, which Waddell himself described as "a masterly paper"; Bridge Engineering, Vol. 1, P. 683. In the same work (Pp. 723-724), Waddell briefly acknowledges that the Halsted Street Bridge did not operate satisfactorily until about 1907, when "changes [were] made in the machinery." On bascule development in Milwaukee and Chicago, see Henry G. Tyrrell, "Lift Bridges of Milwaukee," Municipal Engineering, 45 (July 1913), 2-7; Donald N. Becker, "Development of the Chicago Type Bascule Bridge," American Society of Civil Engineers Proceedings (February 1943), 263-293.
21. Edwin Layton, "John Lyle Harrington," Dictionary of American Biography, Supplement No. 3, P. 331; Waddell credits Harrington's contributions in Bridge Engineering, Vol. 1, Pp. 723-724.
22. Ernest E. Howard, "General Elements in the Design of Vertical Lift Bridges," Railway Age, 70 (June 17, 1921), 1393. The Waddell and Harrington design was not the only vertical-lift type available. In 1913, the engineering press noted that two Chicago firms--the Strobel Steel Construction Company and the Strauss Bascule Bridge Company--had recently, and independently, introduced vertical-lift spans that were hoisted by counterweighted, trussed levers rather than by cables. For the most part, these designs were considered most economical "where the height of travel or lift is not great." Few were built. See "A Vertical-Lift Drawbridge Without Cables," Engineering News, 69 (June 5, 1913), 1170; "The Strauss Direct Lift Bridge," Railway Age Gazette, 54 (March 18, 1913), 553-554; "Direct-Lift Bridges," Engineering Record, 68 (October 11, 1913), 403.
23. Waddell, Bridge Engineering, Vol. 1, P. 744.
24. The Prescott Bridge Company was first organized on 18 February 1920 at a "mass meeting" in Prescott. Before being incorporated, the temporary officers were: H.G. Fiedler, president; Henry Schiller, vice president; Edward Longworth, secretary and treasurer; I.F. Shearer, trustee; H.G. Buschman, trustee; Peter Meier, trustee. Before the company could be

incorporated, Wisconsin law required that one-half of the capital be pledged, and one-fifth of that amount actually held in cash; see "Citizens Should Boost New Bridge," Prescott Tribune, 19 February 1920, 1:5.

25. For a complete history of the ferry, see "Picturesque Ferry at Prescott, Wis.," Prescott Tribune, 11 January 1923, 1:4,5; "The Passing of the Old Ferry," Prescott Tribune, 22 February 1923, 1:4,5.

26. "Prescott May Have A New Bridge Across Lake St. Croix," Prescott Tribune, 5 February 1920, 1:5,6.

27. At the first organizational meeting of the Prescott Bridge Company on 9 December 1920, W.F. Rosenwald, Maintenance Engineer for the Minnesota Highway Commission, apparently spoke at some length on the "Babcock Plan." See "Prescott Bridge Company Thoroughly Organized," Prescott Tribune, 16 December 1920, 1:4. For more on the Babcock Plan, see Arthur J. Larsen, The Development of the Minnesota Road System (St. Paul: Minnesota Historical Society, 1966).

28. "Prescott May Have a New Bridge Across Lake St. Croix," Prescott Tribune, 5 February 1920, 1:5,6.

29. At a meeting in February 1920, the Washington County Commissioners agreed to construct a road to the Prescott Bridge; see Prescott Tribune, 5 February 1920, 1:5,6. At a meeting in November 1920, members from the St. Paul Association and the Board of Ramsey County Commissioners agreed to help with sales of bridge stock; see Prescott Tribune, 25 November 1920, 1:5. In April, the newspaper reported that members of the Prescott Bridge Company, the Prescott City Council, and the Prescott Commercial Club attended a "Good Roads" rally in Hastings, Minnesota for the purpose of selecting a route to St. Paul. Delegations from several Minnesota and Wisconsin communities reportedly pledged their support in selling the bridge stock and securing the desired road improvements; see "Highway from New Bridge," Prescott Tribune, 14 April 1921, 1:6.

30. See the Articles of Incorporation for the Prescott Bridge Company, copy in MNDOT Central Files.

31. For reports of early designs for the Prescott Bridge, see: Prescott Tribune, 5 February 1920, 1:5,6; "Active Campaign on Bridge Stock Sale Starts," Prescott Tribune, 9 September 1920, 1:5.

32. The Prescott Tribune reported on 25 November 1920: "Messrs. Wm. N. Carey and King, engineers of St. Paul, were here Tuesday, making surveys, sounding the lake and will draw plans for a 24 foot [wide] bridge." Now known as Toltz, King, Duvall, Anderson and Associates the firm was, and still is, a prominent architectural and engineering firm based in St. Paul, Minnesota. Max Toltz, mechanical engineer, founded the Toltz Engineering Company in 1910. In 1919, the name was changed to Toltz, King and Day, the other principal members being Wesley King, civil and structural engineer, and Beaver Day, architect. TKD's best known bridge is the Robert Street Bridge in St. Paul, an ornate rainbow arch built in 1926.

33. See the entry dated 9 December 1920, P.1, Vol. 1, Prescott Bridge

Company Corporate Minutes (hereafter referred to simply as Corporate Minutes), in PBCR.

34. See the following entries in the Corporate Minutes: 6 January, 1921, Vol. 1, P. 37; 10 February 1921, Vol. 1, P. 40. Also see the contract between the Prescott Bridge Company and Toltz, King and Day, dated 21 February 1921, in PBCR.

35. By February 1922, the Prescott Bridge Company had purchased all of the necessary right-of-way for the bridge; see "The Prescott Bridge at this Point an Assured Fact," Prescott Tribune, 16 February 1922, 1:1,2.

36. The construction of the Prescott Bridge was approved by the Congressional Act designated: Public No. 309, 66 Congress, Senate 4737. The Wisconsin Legislature approved the construction and operation of the toll bridge with an act designated: No. 82S, Chapter 46, Laws of 1921. The Minnesota Legislature passed a similar act, designated: House File No. 739, Chapter 157, Laws of 1921.

37. Toltz, King and Day submitted some of the bridge plans on 10 December 1921, and reported that the remainder were nearly complete. See Corporate Minutes, 10 December 1921, Vol. 1, P. 46.

38. Corporate Minutes, 20 December 1921, Vol. 1, P. 47.

39. Corporate Minutes, 30 December 1921, Vol. 1, P. 49.

40. Corporate Minutes, 11 February 1922, Vol. 1, P. 51. Lemuel O. Peppard and Edwin P. Fulton were the principal members of Peppard and Fulton. The men apparently met in Minneapolis, where they worked and lived as carpenters in the early 1900s. In the 1920s, they established a contracting business under the name of Peppard and Fulton in Superior, Wisconsin. In 1925, the firm appears to have relocated its main office to Minneapolis, while maintaining an office in Superior. The firm apparently dissolved in 1936 (see City Directories for Minneapolis and Superior for these years). It is not known whether the firm had any bridge experience previous to the Prescott project, but in 1931 they served as general contractors for construction of the Stillwater Bridge, also a Waddell-and-Harrington, vertical-lift highway bridge (see Jeffrey A. Hess, "Nomination Form for the Stillwater Bridge," unpublished, 1988). Little is known about Fulton's background, except that he is listed as a contractor and carpenter in the Minneapolis City Directory from 1903 to 1909. In 1923, he reappears as part of the general contracting firm of Nelson, Fulton and Nelson. He continued with this firm until 1925, when it dissolved. Lemuel O. Peppard appears to have been the brother of Albert H. Peppard, a Minneapolis architect and builder (see the 1884 Minneapolis City Directory, in which both men are listed at the same address; also see Marion D. Shutter, ed., History of Minneapolis, Vol. III (Chicago and Minneapolis: S.J. Clarke Publishing Co., 1923), P. 484, for a biography of Albert H. Peppard). As such, Lemuel was the son of John and Sarah (Davis) Peppard of New Brunswick. John Peppard was a carpenter, and apparently taught both Lemuel and Albert the trade. Albert moved to Minneapolis in 1880. Lemuel also moved to the area, first being listed in the 1882/1883 Minneapolis City Directory as a carpenter. Lemuel apparently moved away

from Minneapolis in 1905. He reappears in the City Directory from 1910 to 1920, and again in 1925 to 1941.

41. Prescott Tribune, 16 February 1922, 1:1,2.
42. Prescott Bridge Company to Toltz, King and Day, 13 June 1922, in PBCR.
43. "Steel Going Up On Bridge," Prescott Tribune, 14 September 1922, 1:2.
44. Prescott Tribune, 23 November 1922, 4:3.
45. "Bridge Celebration," Prescott Tribune, 7 June 1923, 1:3; "Bridge Celebration," Prescott Tribune, 14 June 1923, 1:6; "Big Time at Bridge Opening," Prescott Tribune, 28 June 1923, 1:3.
46. Peppard and Fulton to Prescott Bridge Company, 18 August 1923, in PBCR.
47. The Prescott Bridge Company's arrangement with its bridge tenders is described in C.H. Kirch to E.J. Miller, 18 July 1946, MNDOT Central Files.
48. Corporate Minutes, 5 March 1925, Vol. 1, P. 102.
49. For work done to the bridge by the Prescott Bridge Company see Corporate Minutes and Secretary's Report, in PBCR. The Secretary's Report for the fiscal year ending 1928 notes that the deflector sheaves were replaced at a cost of \$253.33. See Corporate Minutes, 4 March 1937, Vol. 2, P. 160, for the War Department's request for a signal horn on the bridge. For the construction of the steel stairway, see the following entries in the Corporate Minutes: 6 March 1941, Vol. 3, P. 57; 3 July 1941, Vol. 3, P. 61; 7 August 1941, Vol. 3, P. 62.
50. The following traffic information was drawn from PBCR:

YEAR	CARS	TRUCKS
1926	67,167	6,181
1927	71,040	9,089
1928	78,529	13,339
1929	86,048	15,281
1930	104,752	20,932
1931	107,484	24,625
1932	85,699	16,328
1933	70,597	15,570
1935	93,036	20,089
1936	119,417	25,658
1937	125,155	22,616
1938	130,759	23,216
1943	96,015	28,884
1944	106,101	30,218

For 1940 traffic figures, see Minnesota Highway Commission, "Data on Prescott Toll Bridge," c.1940, in MNDOT Central Files.

51. The following lift information was drawn from PBCR: 1931--98 lifts; 1933--48 lifts; 1936--96 lifts; 1938--104 lifts; 1944--77 lifts. For 1946. lifts, see Wisconsin State Highway Commission, "Analysis of Bridge

Openings, Prescott Bridge, M-118," c. 1951, MNDOT Central Files.

52. W.C. Nitardy, memo to E.J. Miller, 16 April 1946, MNDOT Central Files.

53. See "President's Report," in PBCR.

54. Robert Newberry, "Historical Report," unpublished paper, 1988; copy on file at WisDOT.

55. C.M. Babcock to Thomas J. Pattison, 29 July 1932, MNDOT Central Files.

56. Thomas J. Pattison to C.M. Babcock, 18 July 1932, MNDOT Central Files.

57. Ibid.

58. Ibid.

59. C.M. Babcock to Thomas J. Pattison, 29 July 1932, MNDOT Central Files.

60. C.M. Babcock to Thomas J. Pattison, 11 October 1934, MNDOT Central Files.

61. C.M. Babcock to Thomas J. Pattison, 8 July 1940, MNDOT Central Files.

62. Thomas J. Pattison to M.J. Hoffman, 18 July 1940, MNDOT Central Files; C.D. Johnson, memo to M.J. Hoffman, 28 July 1942, MNDOT Central Files.

63. Wisconsin Highway Commission, "Hearing Before the State Highway Commission in the Matter of a Bridge Project Across the St. Croix River at Prescott, Wisconsin," unpublished transcript from hearing held on 1 December 1942, MNDOT Central Files.

64. In September, 1943, the Wisconsin Highway Department informed the Prescott Bridge Company that purchase of the bridge would be suspended until after the war, see Corporate Minutes, 9 September 1943, Vol. 3, P. 89. Negotiations for the bridge appear to have resumed in 1945, and were chiefly hindered by disagreements over price. The Wisconsin and Minnesota Highway Commissions estimated the Prescott Bridge to be worth approximately \$100,000, based on the current cost of duplicating the structure, less its depreciation over 23 years (the bridge's current age); see C.H. Kirch to E.L. Roettiger, 10 August 1945, MNDOT Central Files. The commissions officially made a joint offer in this amount in October, 1945, and requested a response by 1 December; see Corporate Minutes, 9 October 1945, Vol. 3, P. 125.

To gain a clearer idea of the value of the bridge, the Prescott Bridge Company in October 1945 hired Toltz, King and Day to make an appraisal of the structure, based on cost of replication, repairs and depreciation; see Corporate Minutes, 9 October, 1945, Vol. 3, P. 125; 18 October 1945, Vol. 3, P. 126. TKD's appraisal of the bridge agreed very closely with the highway commissions', being \$107,000 (Toltz, King and Day to Prescott Bridge Company, 26 December 1945, MNDOT Central Files).

Despite TKD's report, the Prescott Bridge Company directors were undecided

whether or not to sell the bridge for the price offered. I.F. Shearer, the secretary for the corporation, however, offered a plan. According to the Corporate Minutes (3 November 1945, Vol. 3, P. 128):

Whereas the board had been divided on the matter of the States offer, part of the directors being in favor of accepting the offer, and part being against accepting the offer and the majority being decidedly against using any of the company's funds in trying to secure a better price, I.F. Shearer made the following proposal: That he be granted the privilege, as an individual, of negotiating with the Highway departments, in his own way, paying all legal and other expenses and not obligating the company for any purpose, or making any claim, except that he be allowed the free use of the engineers detailed appraisal, that had been previously ordered by the company, and in the event of no increase of price being secured, said I.F. Shearer was not to [be] recompensed in any way or particular, but if any better settlement is secured then I.F. Shearer is to receive 10% of any and all such amount as is above the original offer of \$100,000....

Shearer immediately wrote the Wisconsin Highway Commissioner to double the price of the bridge, claiming that the company deserved to be reimbursed for its franchise and earnings. He wrote:

We note that you may consider making a formal offer of \$100,000 for our physical property and requesting a reply not later than December 1st, 1945. Since then we have had the leading engineering firm in St. Paul make an examination of our property and prepare an estimate and appraisal of our entire property, and it shows a much greater value...than your offer, also we consulted some leading attorneys in both states...and they all tell us that our franchise and the rate of earnings during the past several years will be admitted by any court and due consideration given them, also we have secured reports from several bridges that have been taken over by different states...and in every case the franchise and rate of earnings were taken into account....So we feel that value of our bridge should be about \$225,000 but we do not want to be unreasonable and if you care to consider making an offer of \$200,000 for the entire property...we will advise the stockholders to accept it....(I.F. Shearer to Wisconsin Highway Commissioner, 27 November 1945, MNDOT Central Files)

After including the rate of earnings in the value of the bridge, the highway departments did eventually decide that the bridge was worth \$190,000; see W.C. Nitardy, memo to E.J. Miller, 16 April 1946, MNDOT Central Files. After a series of meetings with Shearer, a tentative sale price of \$190,000 was agreed to. On 30 March 1946, the shareholders of the Prescott Bridge Company agreed to the offer (see Corporate Minutes, 7 February, 1946, Vol. 3, P. 132; 30 March 1946, Vol. 3, P. 134).

65. See Agreement between the State of Minnesota and the State of Wisconsin, 13 May 1946, MNDOT Central Files.

66. Ibid.; also see "Agreement for Interstate Bridge Repair and Maintenance Contract between Wisconsin and Minnesota," 22 December 1950,

MNDOT Central Files.

67. For details on the 1952 project refer to MNDOT Central Files, and particularly the following documents: Edwin G. Sontag to E.J. McCubery, 24 March 1952; Robert E. Wright to Minnesota Highway Department, 7 April 1952; "Proposal for Highway Work," made between Wisconsin Highway Commission and L.G. Arnold, Inc., 21 August 1952; M.W. Fisher to L.G. Arnold, Inc., 17 November 1952; "Contract Change Order," made between Wisconsin Highway Commission and L.G. Arnold, Inc., January 1953. Also see: "Chipping Machine Cuts Concrete Removal Time," Construction Methods and Equipment (November 1953) 58-59, for discussion of L.G. Arnold Inc.'s repair of damaged sections of the lift span floor. For information on the 1980 project, see Prescott Journal, 28 February 1980; clipping of article contained in WisDot Central Files.

68. M.W. Fisher to M.O. Giertsen, 8 March 1954, MNDOT Central Files.

69. The best sources for information on the replacement of the Prescott Bridge are WisDot's Central File records on the structure. Unless otherwise noted, all material on this topic was drawn from this source.

70. For lift information on the years 1946-1953 and 1960, refer to MNDOT Central Files. For scattered lift records after 1969, see WisDot Central Files. Increasing recreational use of the St. Croix necessitated more lifts at the Stillwater Bridge as well; see Jeffrey A. Hess, "Nomination Form for the Stillwater Bridge," unpublished, 1988.

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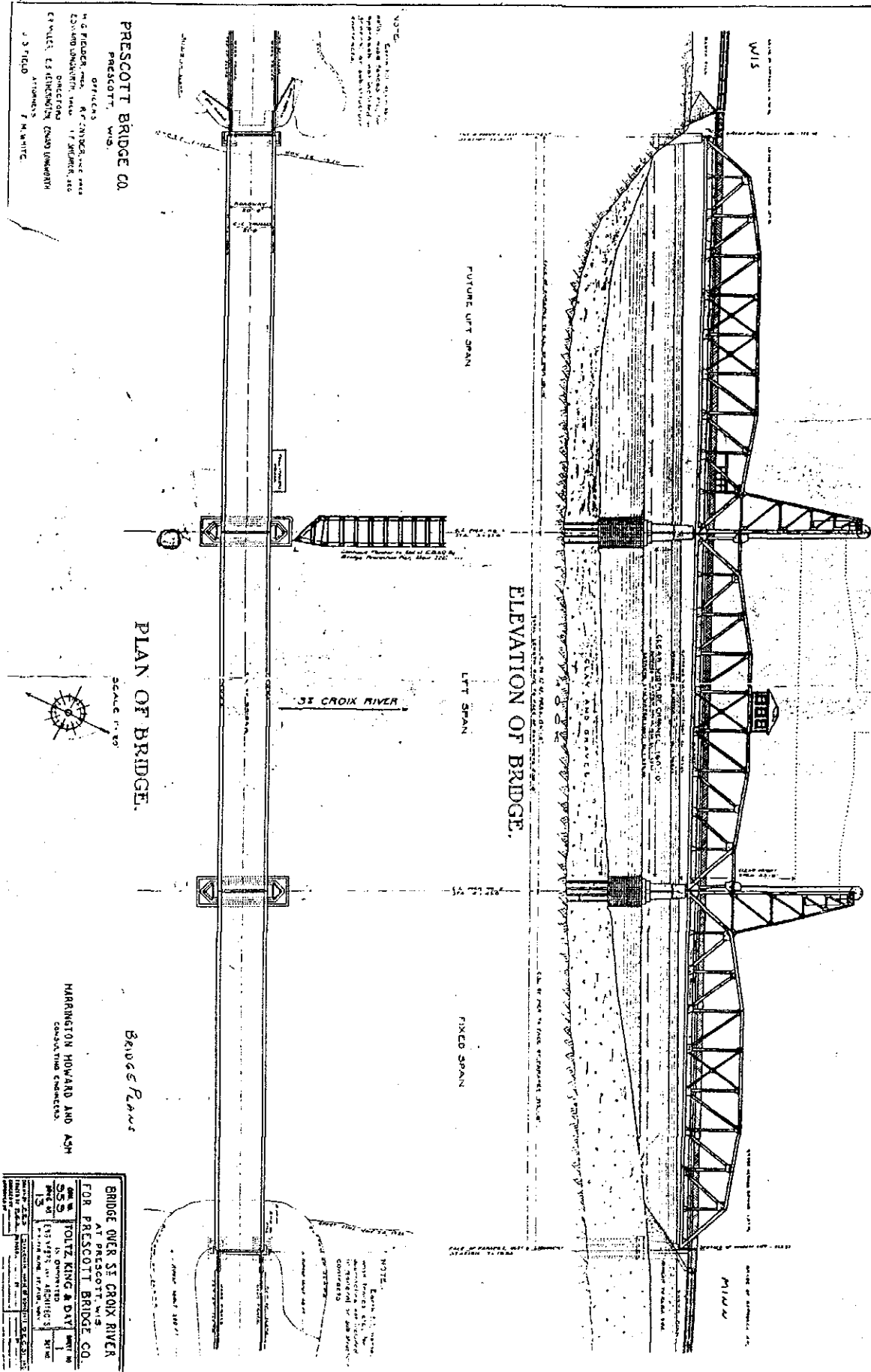
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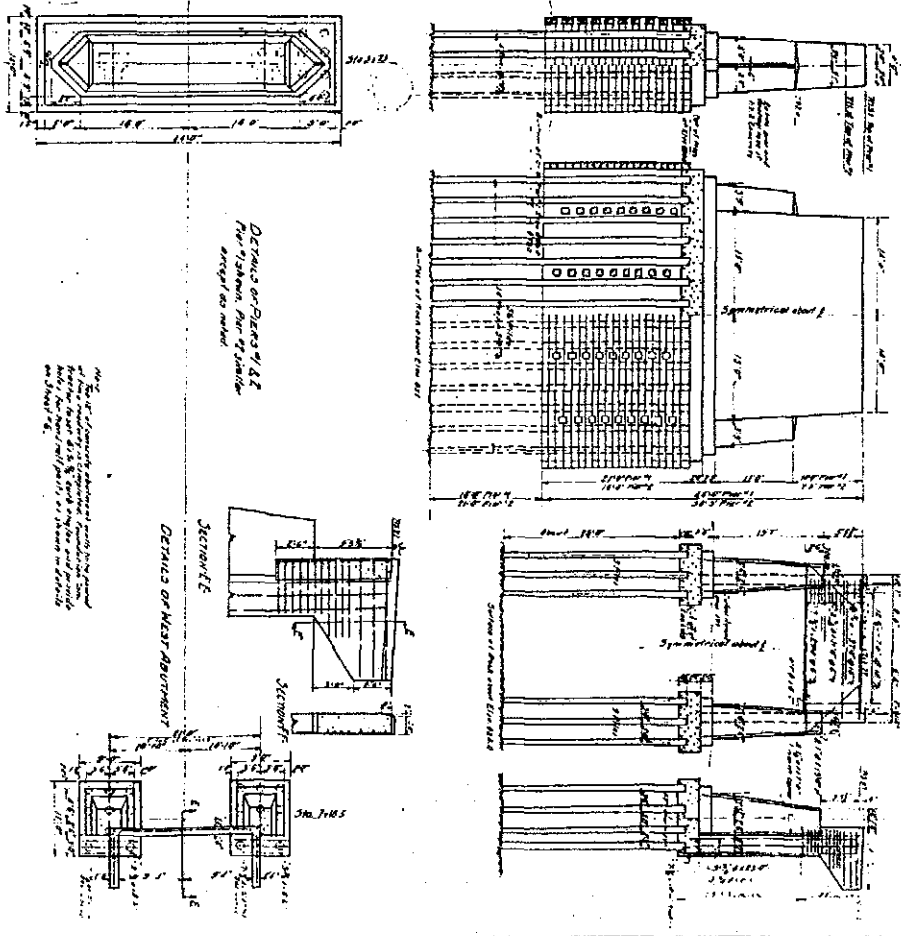
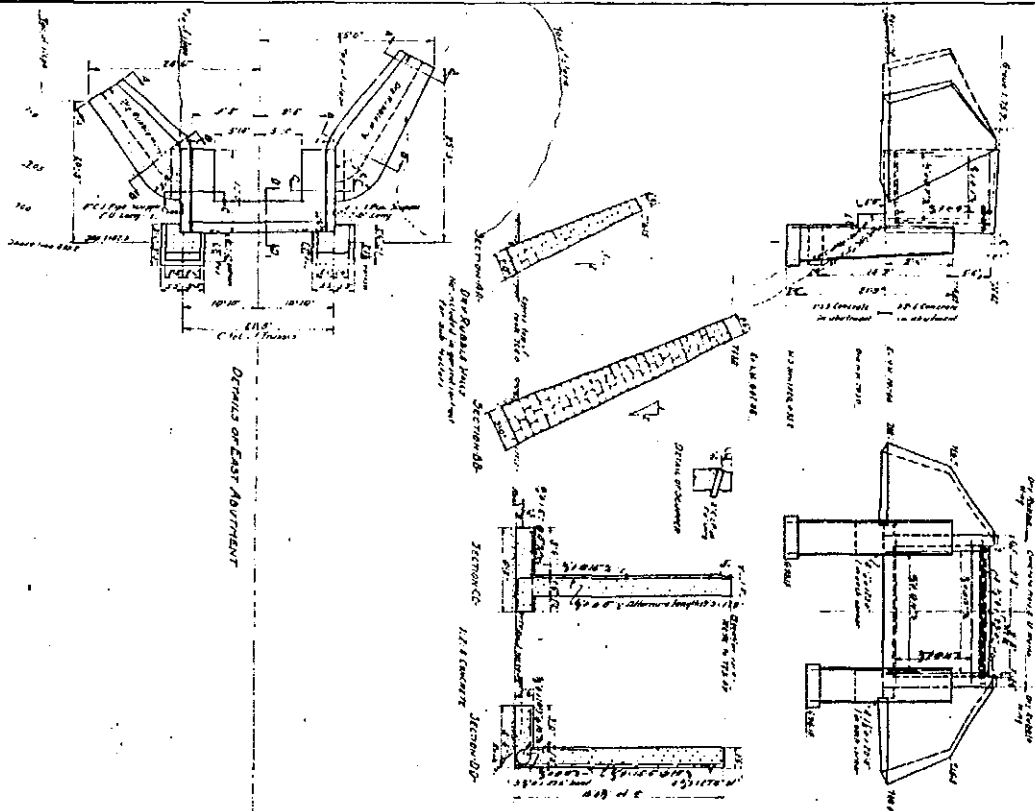
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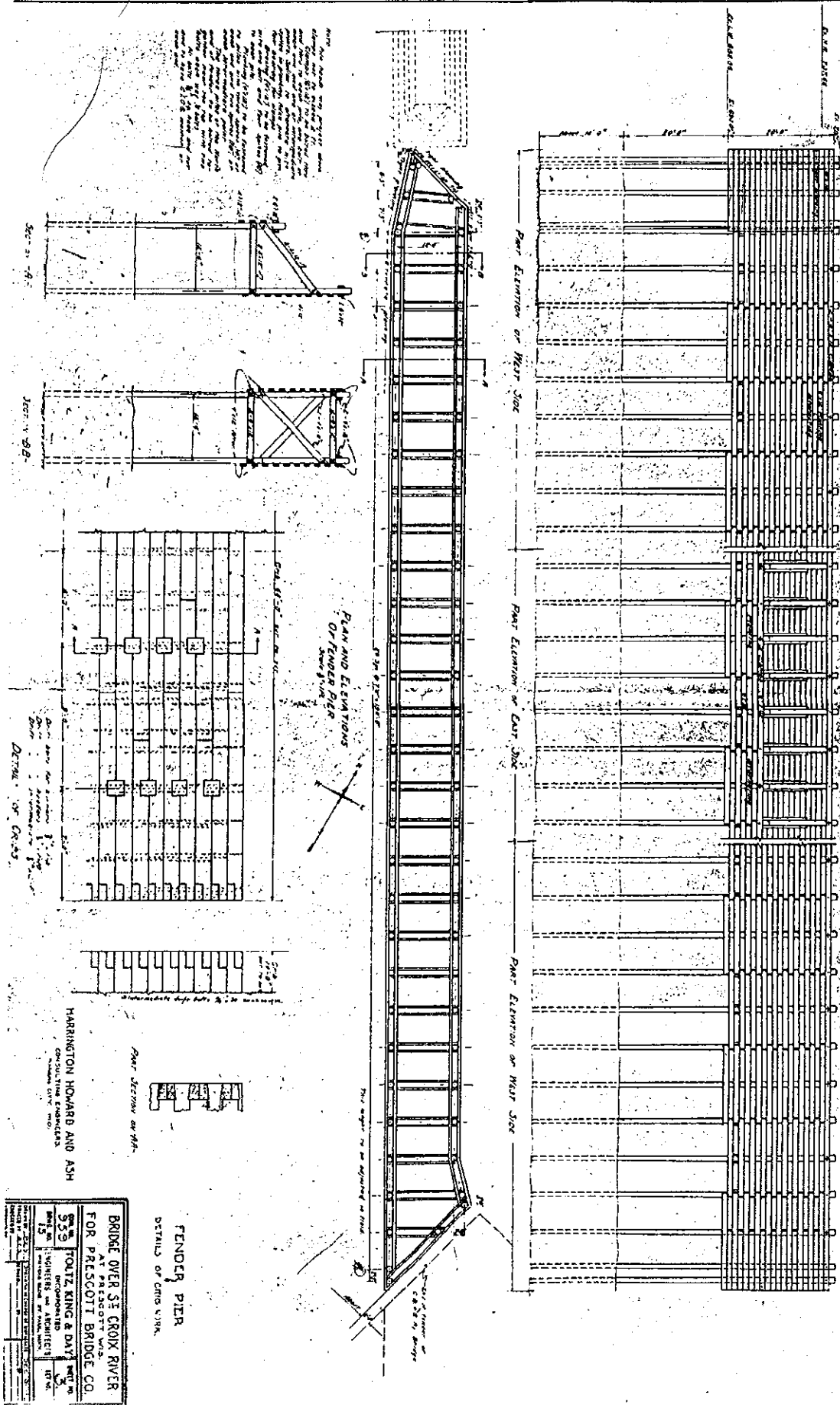
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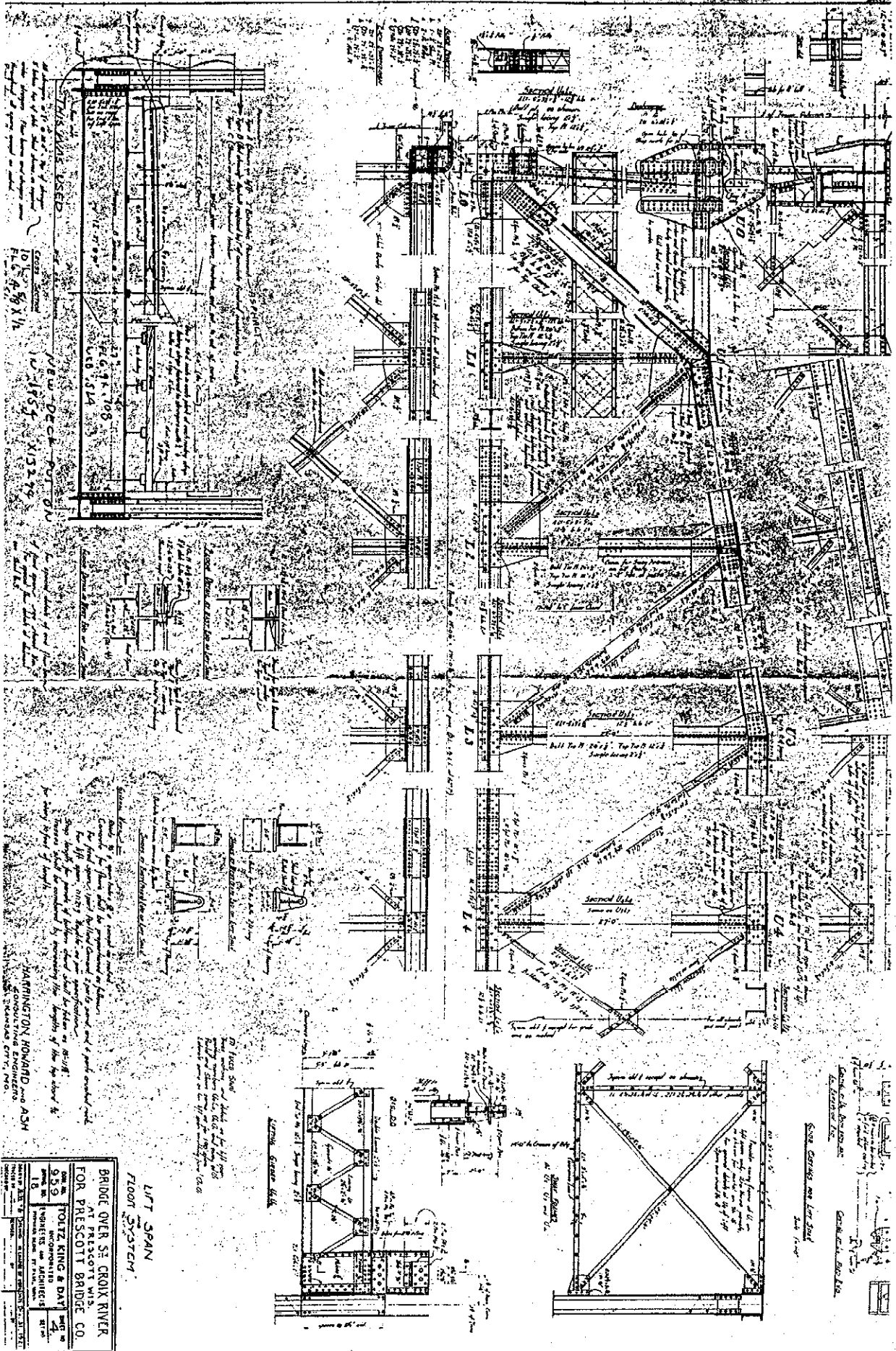


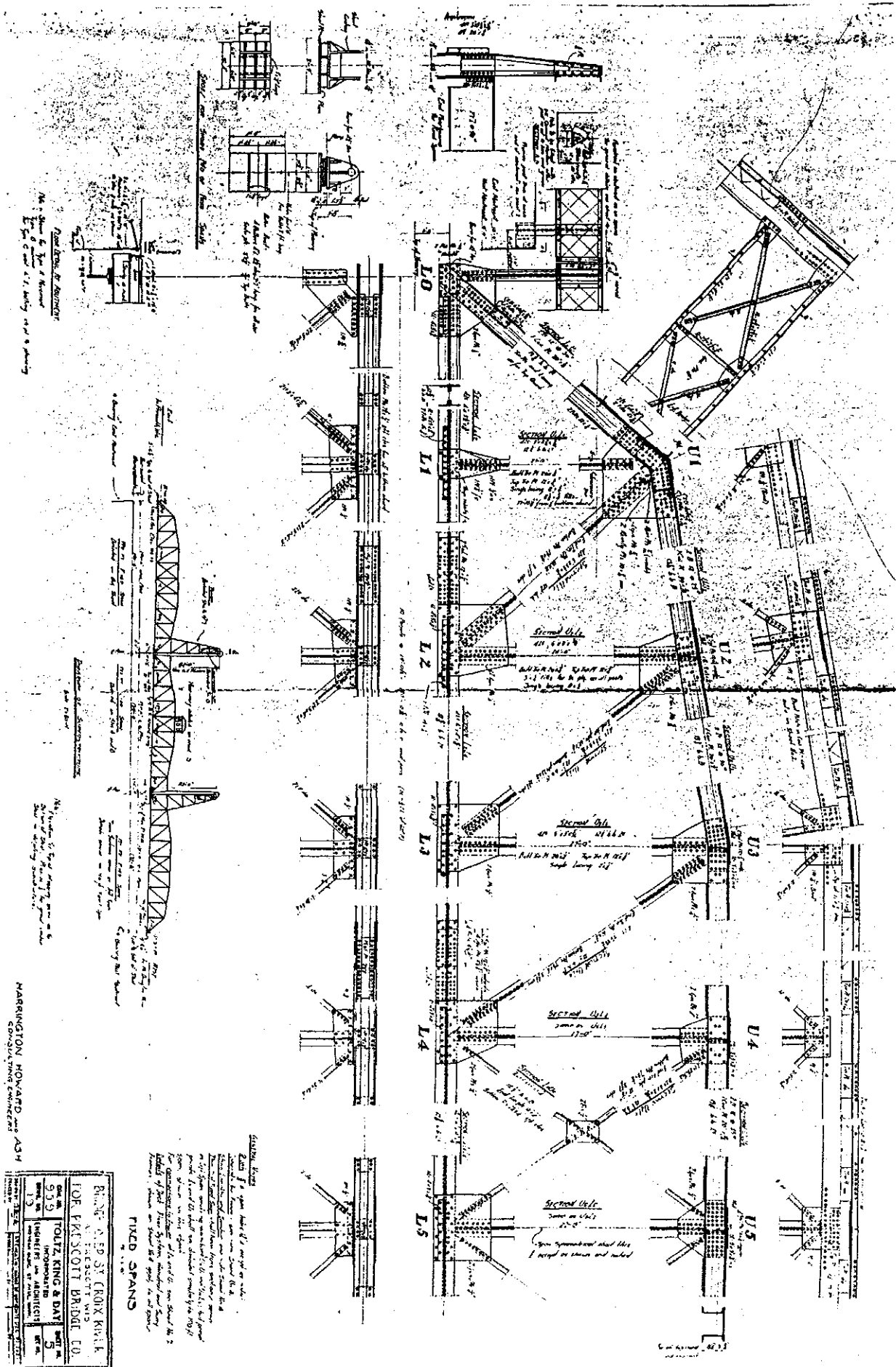


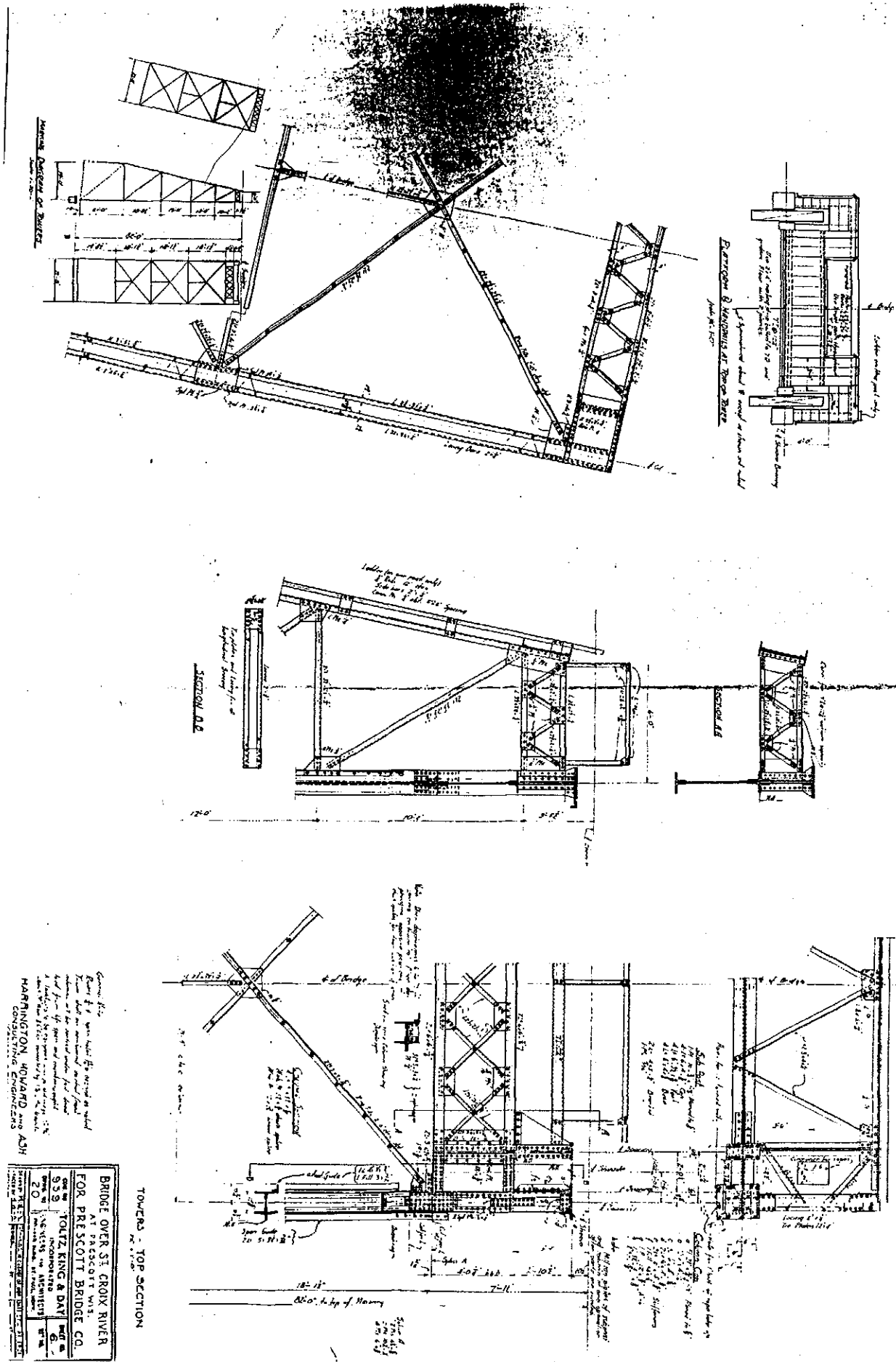
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CONSULTING ENGINEERS

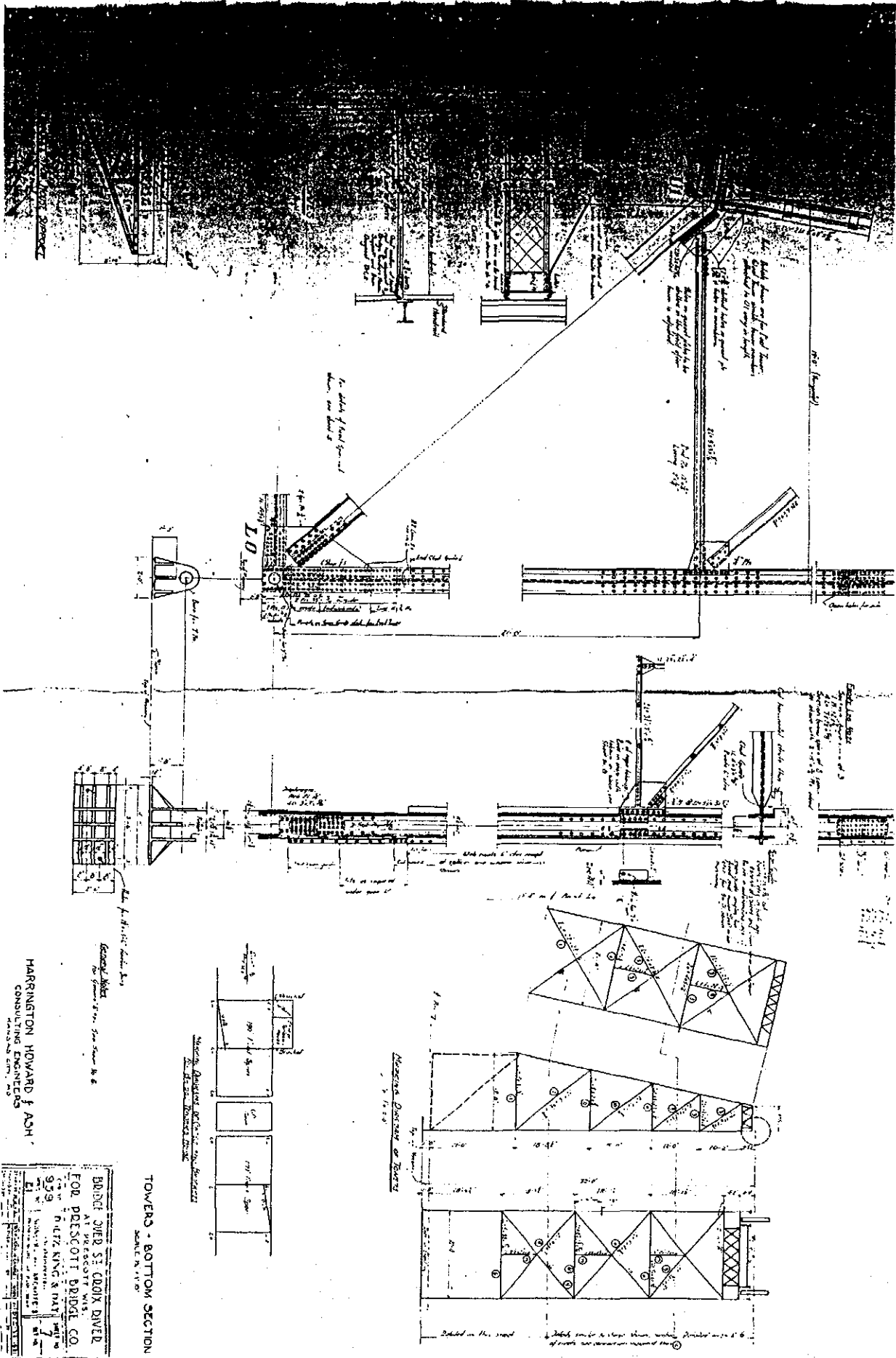
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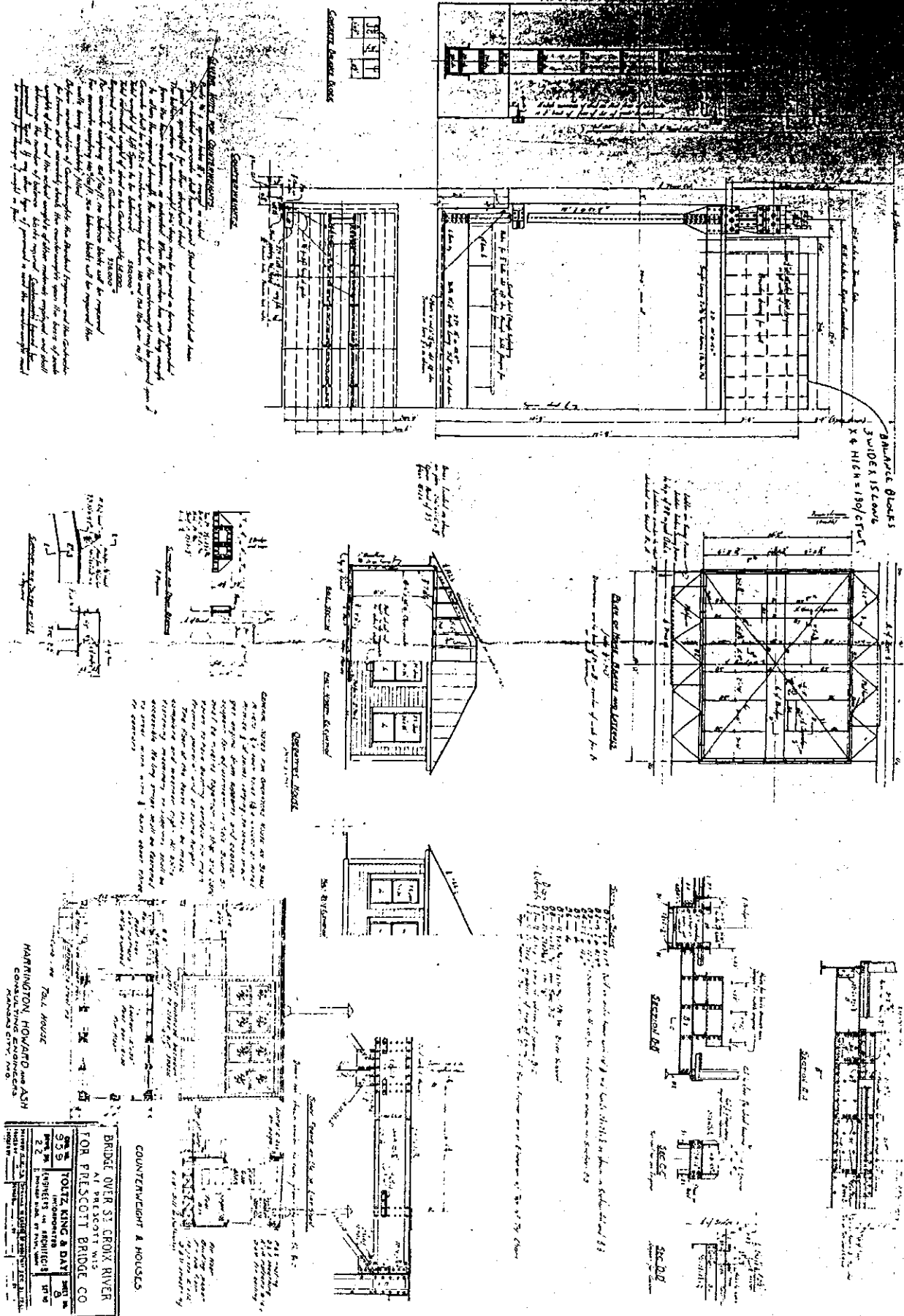


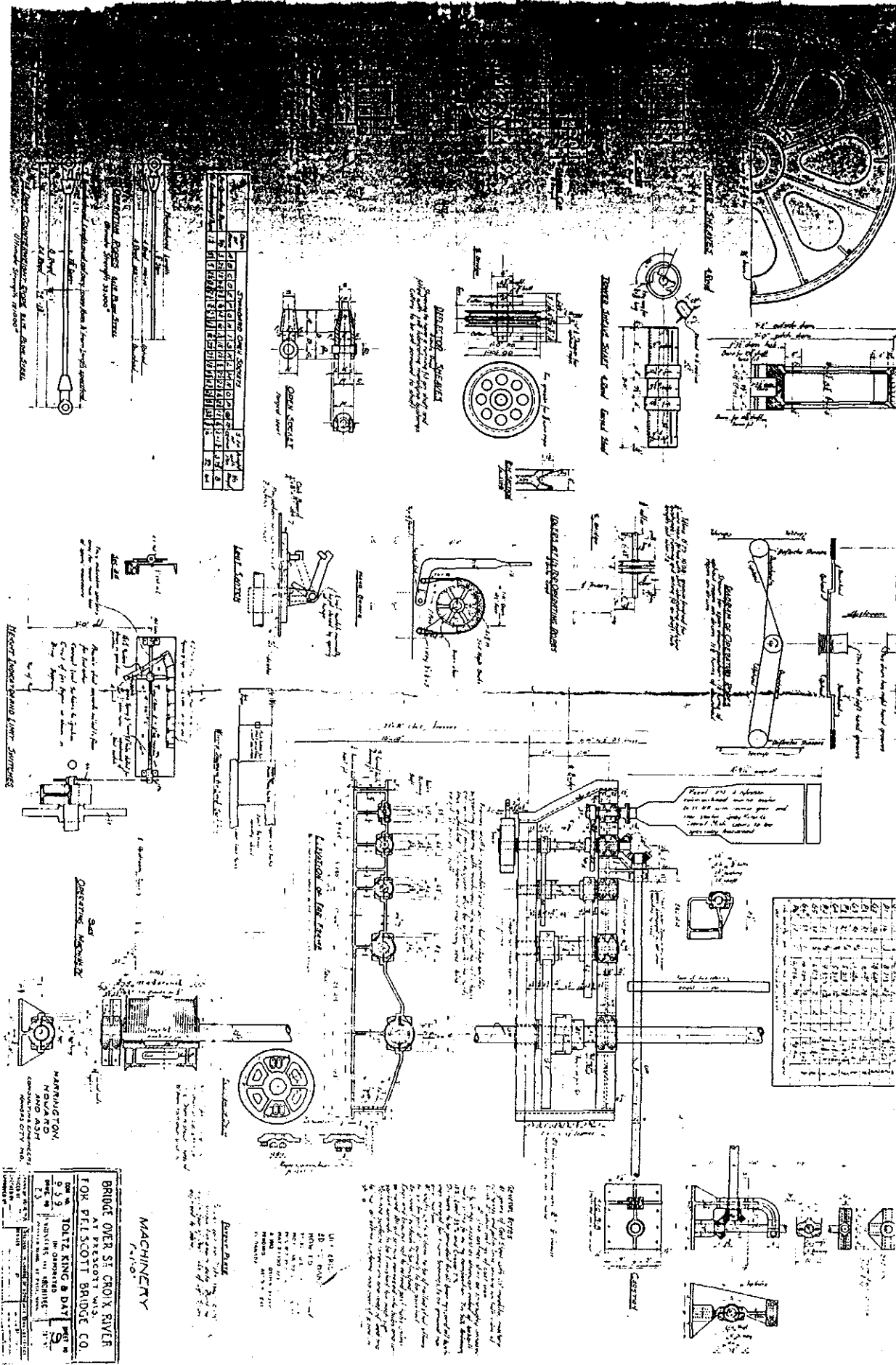












Prescott Div. 4c

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(Page 42) HASTINGS QUADRANGLE

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